Radium present in fog-chamber		$\delta p = 18.5$
Radium removed.	3.5 hours after removal,	21
" "	21 " " "	22
" "	29 " " "	23

On leaving the fog-chamber for hours without interference, the fog-limit for the excited activity was found to be lower, the coronas (cæt. par.) larger than if but a few minutes elapse between the condensations. Thus it takes time for the induced activity to saturate the air within the fog-chamber with nuclei, and more time as its activity is weaker. Persistence in case of the larger (X-ray) nuclei must be reckoned in hours.

A little induced activity was obtained through the hermetically sealed glass tube (walls say .5 millimeter thick) vanishing completely in about fifteen minutes, to the fog-limit of dust-free air. The same radium in the hermetically sealed aluminum tube (walls say .1 millimeter thick) left an excited activity behind in the fog-chamber, vanishing in about forty hours gradually to the fog-limit of dust-free air. It seems, therefore, as if something besides beta and gamma rays passed through these relatively thick tubes. Leaving this for further examination* I need merely instance here the adaptability and sensitiveness of the condensation method for the present purposes, where, moreover, the coronas will indicate the numbers of nuclei produced under any given conditions.

2. The general facts of the preceding paragraph are inferred objectively if an X-ray bulb is placed near one end of a long condensation chamber of waxed wood and the effect of sudden exhaustion viewed broadside through plate glass windows.† The coronas obtained after short exposure are all roundish, but taper in diameter from a large size near the bulb to a vanishing diameter (apex) near the middle of the chamber, with all intermediate gradations of aperture in corresponding intermediate positions. All lie within two oblique lines symmetrically inclined to the horizontal axis and meeting near the middle. The pressure difference used is thus more and more in excess of the fog-limit as the line of sight is nearer the bulb. Beyond the apex, the pressure difference used is below the fog-limit. The number of nuclei within the given range of condensation, *i. e.*, above a certain lower limit of diameter, increases with the intensity of the ionization. Smaller nuclei occur throughout the chamber and particularly within the reentrant region left blank after condensation.

3. If the number of nuclei (n per cu. cm.) is mapped out in relation to the corresponding pressure difference, δp, the initial slopes of the curves obtained are steeper as the fog-limit is lower. Thus per increment of δp of one cm. of mercury above the fog-limit of the ionized medium, and decidedly below the fog-limit of dust-free air, I observed with

Radium in sealed aluminum tube within fog-chamber,	$\delta n = 12{,}000$
Radium in sealed glass tube within fog-chamber.	6,000
Radium in sealed glass tube, 45 cm. from fog-chamber, outside	4,000
Do., 200 cm. from fog-chamber	1,000
Dust-free air (δp above 24.5 cm., radium at infinity)	4,000

Hence, effectively, the gradation of nuclei is more even, finer, *i. e.*, with fewer gaps, as the fog-limit is low and the maximum size of nucleus larger, while for sparse distributions the steps from one nucleus to the next in the order of average size are relatively large. For a different medium, dust-free air, for instance, the gradation is characteristically different.

Carl Barus.

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* An important question is here confronted: Can an induced activity having any period of decay (within limits) be produced by successive filtering of the contents of the sealed tube containing radium, through walls of different thickness of density. In such a case the induced activity (supposing that no emanation escapes) would be a kind of phosphorescence.

† *Am. Journal*, Vol. 19, February, p. 175, 1905.

CURRENT NOTES ON METEOROLOGY.

LONDON FOG INQUIRY, 1901–3.

The 'Report of the Meteorological Council upon an Inquiry into the Occurrence and Distribution of Fogs in the London Area, during the Winters of 1901–2 and 1902–3' has been issued, and is summarized in *Nature* for January 12, 1905. The investigation was carried on with the aid of the Metropolitan

Fire Brigade, at thirty of whose stations daily temperature observations were made at fixed hours. The majority of the fogs are found to be due to radiation during calm, clear nights. Others are due to the passage of warm air over a cooled surface, and a third group is identified as 'cloud' fog. Some fogs could not be included in any of these categories. These fogs were accumulations of combustion products in an almost calm atmosphere, and were termed 'smoke' fogs. A fog scale, based on the extent to which traffic is impeded by land, river and sea, has been established as a result of this inquiry. As a first step in the direction of greater precision in fog forecasts, a night service at the Meteorological Office is recommended. Forecasts issued at 5 A.M. would have a much greater chance of being verified than is the case with those now issued at 6 P.M., for fogs are chiefly caused by nocturnal radiation. Radiation depends largely on the state of the sky, and an observation of the state of the sky in the early morning would make it possible to give several hours' warning. The present forecasts rarely, if ever, contain any indication of the intensity of the fog to be expected. A detailed study of the distribution of temperature within the London area during fogs shows that the thickest fog is usually to be found in the coldest region.

MOSSES, TREES AND POINTS OF THE COMPASS.

A RECENT number of *Ciel et Terre* (December 16, 1904) contains a note on the orientation of moss growths on trees. It has been stated that mosses grow so much more frequently on the north sides of trees that a traveler who has lost his way in a forest can by this means determine the points of the compass. Lately, further investigation of this matter shows that the mosses grow by preference on the sides of the trees which, for one reason or another, are least likely to lose their moisture. On horizontal branches, the mosses usually grow on the upper side, because the water remains there most readily. The bases of the trunks are more moss-covered because they receive a larger quantity of water. The unequal distribution of light also plays a part.

MONTHLY WEATHER REVIEW.

THE October, 1904, *Monthly Weather Review* (dated December 22) contains the following original articles and notes: 'Studies of Raindrops and Raindrop Phenomena,' by W. A. Bentley, illustrated by photographic reproductions; 'The Advancement of Meteorology,' by T. H. Davis; 'Thunderstorms at Tampa, Fla.,' by J. Bily, Jr.; 'Mount Tsukuba Meteorological Observatory,' by S. T. Tamura; 'September Floods in the Southwest'; 'Royal Meteorological Society'; 'Long-Range Forecasts,' by H. B. Wren; 'Seasonal Rainfall Régimes in the United States,' by V. Raulin; 'Tropical Storm of October 10–20, 1900'; 'The Dechevrens Anemometer: Cold Waves.'

NOTES.

THE *Bulletin* of the Philippine Weather Bureau for July, 1904, just received, gives details of a remarkable rainfall which occurred on the eleventh to the fifteenth of that month. Between 8 A.M. of the twelfth and 11 A.M of the thirteenth the total fall at the Manila Observatory was 17.19 inches, a quantity much greater than the normal rainfall for July (14.89 inches), which is also the normal monthly maximum for the year. Three half-tone views show the character of the inundations in the city of Manila.

R. DEC. WARD.

SCIENTIFIC NOTES AND NEWS.

AT the meeting of the Society of American Bacteriologists, held in Philadelphia on December 28, 1904, the following officers were elected: *President,* Professor E. O. Jordan; *Vice-President,* Professor S. C. Prescott; *Secretary* and *Treasurer,* Professor E. P. Gorham; *Council,* Professor F. G. Novy, Dr. Erwin F. Smith, Professor F. D. Chester, Dr. J. J. Kinyoun; *Delegate to the Council of the American Association for the Advancement of Science,* Professor W. H. Welch.

OFFICERS for the Society for the Promotion of Agricultural Science have been elected as follows: *President,* Dr. H. P. Armsby, State College, Pa.; *Secretary* and *Treasurer,* Professor F. Wm. Rane, New Hampshire College, Durham, N. H.; *Executive Committee,* Dr. J.